

board (4) at each package site (21).

#### Reference Numbers

- 1 semiconductor package
- 2 semiconductor chip
- 3 contact areas on chip
- 4 re-distribution board
- 5 microscopic solder balls
- 6 contact areas on re-distribution board
- 7 epoxy
- 8 external contact areas
- 9 macroscopic solder balls
- 10 heat spreader
- 11 flat plate of heat spreader
- 12 protruding bar of heat spreader
- 13 chamfered edge
- 14 groove
- 15 thermally conductive adhesive
- 16 non-conducting adhesive
- 17 open ended tunnels
- 18 longitudinal V-shaped sawing groove
- 19 matrix-sized heat spreading module
- 20 substrate
- 21 package site
- 22 package demarcation lines
- 23 rectangular metal sheet
- 24 lateral V-shaped sawing groove
- 25 protruding bar of matrix-sized heat spreading module 19

#### Abstract

1. A semiconductor package (1) comprises a semiconductor chip (2) including an active surface with a plurality of chip contact areas (3) and a package substrate (4) including a plurality of first contact areas (6) and a plurality of second contact areas (8) on its bottom surface. The chip (2) is mounted on the package substrate (4) with its active surface facing the package substrate (4). A plurality of conducting means (5) provide electrical contact between the chip contact areas (3) and the first contact areas (6). A heat spreading means (10) comprises a planar area (11) and at least one protrusion (12). The planar area (11) is attached to the upper surface of the chip (2) and the protrusion (12) is attached to the upper surface of the package substrate (4).

[Fig. 1]

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